Clinical examination and diagnosis of extra articular hip and groin pain

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Consensus Meeting on Terminology and Definitions in Groin Pain in Athletes

Aspetar, November 2014

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Aspetar, November 2014

I. Defined clinical entities in groin pain
II. Hip related groin pain
III. Other causes for groin pain

OPEN ACCESS

Doha agreement meeting on terminology and definitions in groin pain in athletes

Adam Weir,[1] Peter Brukner,[2] Eamonn Delahunt,[3,4] Jan Ekstrand,[5] Damian Griffin,[6] Karim M Khan,[1,7] Greg Lovell,[8] William C Meyers,[9] Ulrike Muschaweck,[10] John Orchard,[11] Hannu Paajanen,[12] Marc Philippon,[13,14,15] Gilles Rebel,[1,16] Philip Robinson,[17] Anthony G Schache,[18] Ernest Schilders,[19] Andreas Serner,[21] Holly Silvers,[20] Kristian Thorborg,[21] Timothy Tyler,[22] Geoffrey Verrall,[23] Robert-Jan de Vos,[24] Zarko Vuckovic,[1] Per Hölmich[1,21]

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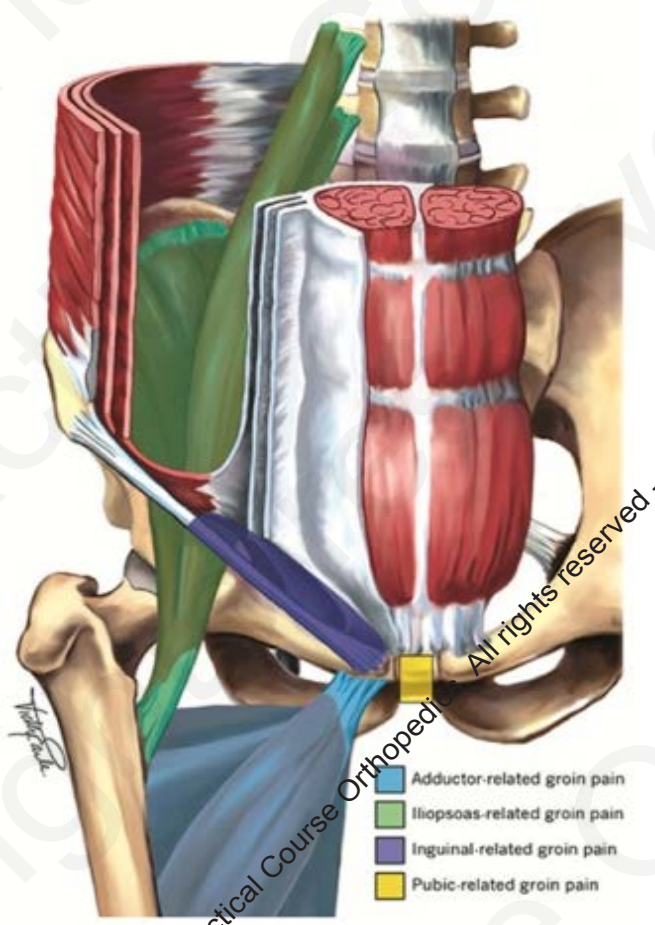
Defined clinical entities for groin pain

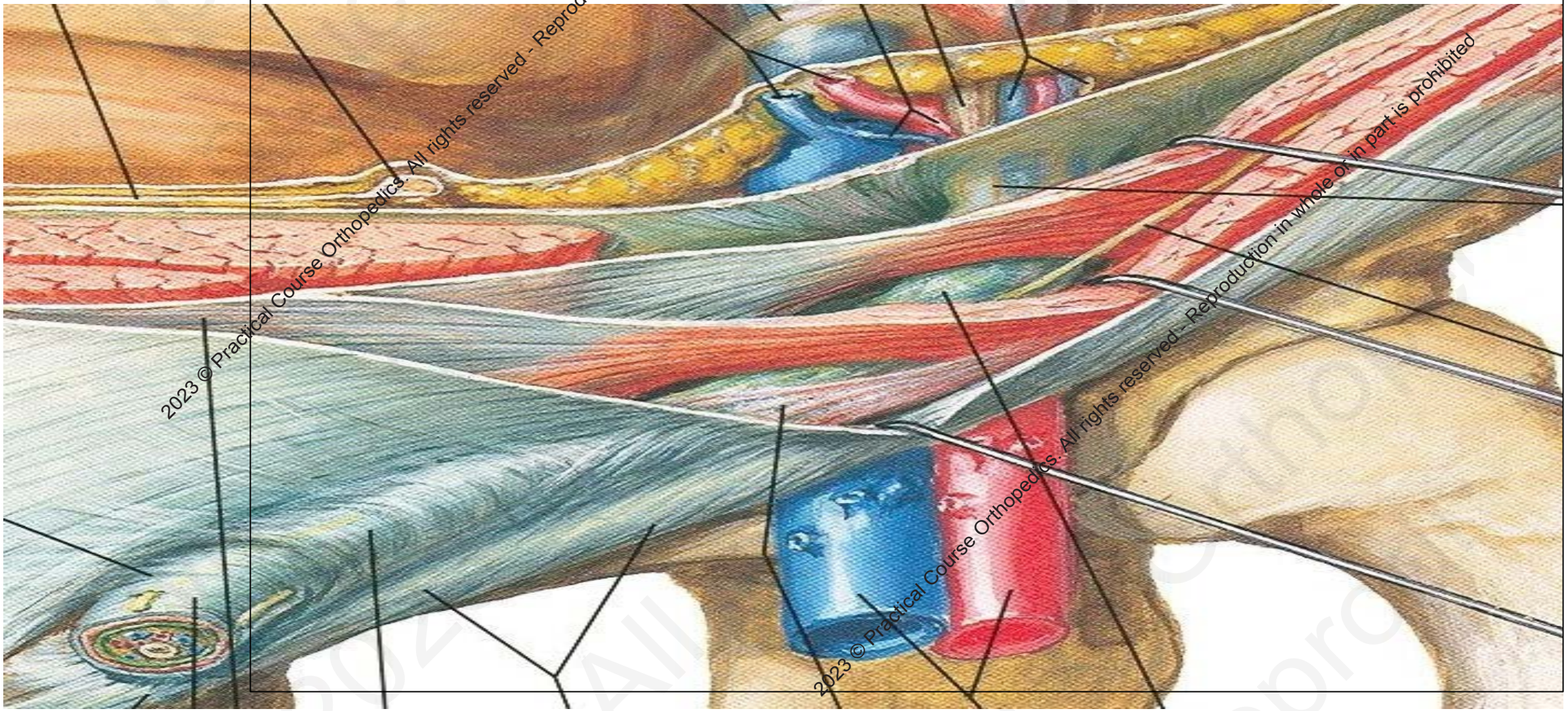
Defined clinical entity	Symptoms and examination findings
Adductor-related groin pain	Adductor tenderness and pain on resisted adduction testing
Iliopsoas-related groin pain	Iliopsoas tenderness plus, more likely if pain on resisted hip flexion and/or pain on hip flexor stretching
Inguinal-related groin pain	Pain in inguinal canal region and tenderness of the inguinal canal. No palpable inguinal hernia is present. More likely if aggravated by abdominal resistance or Valsalva/cough/sneeze
Pubic-related groin pain	Local tenderness of the pubic symphysis and the immediately adjacent bone. No particular resistance tests to test specifically for pubic-related groin pain

Defined clinical entities for groin pain

1. Adductor Related Groin Pain
2. Iliopsoas Related Groin Pain
3. Inguinal Related Groin Pain
4. Pubic Related Groin Pain



The Groin Anatomy



Etude prospective de janvier à mai 2017 :

- **64 patients (32) : 128 parois analysées**
- **100% sexe masculin**
- **31,7 ans moy age**

Analyses réalisées par chirurgien / radiologue (un junior/un senior)

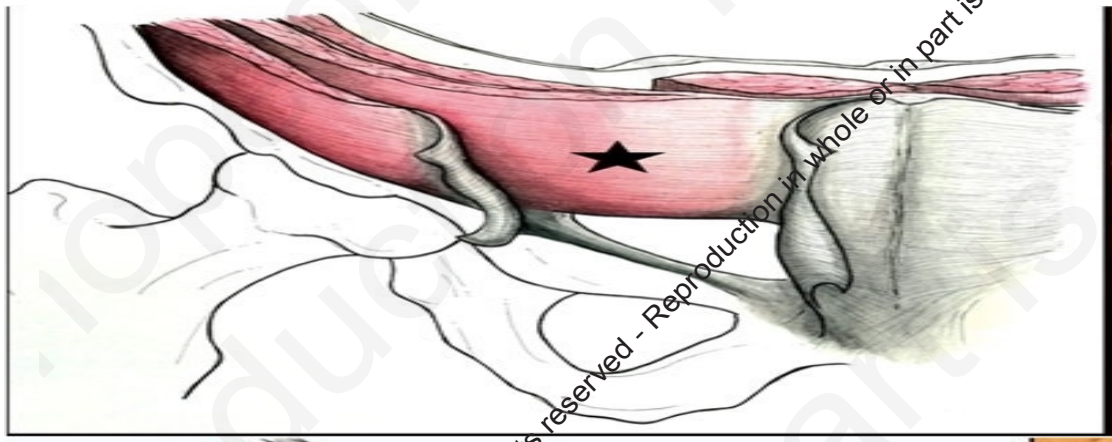
Critére : Insertion du Tendon conjoint (Stade 1/2/3)

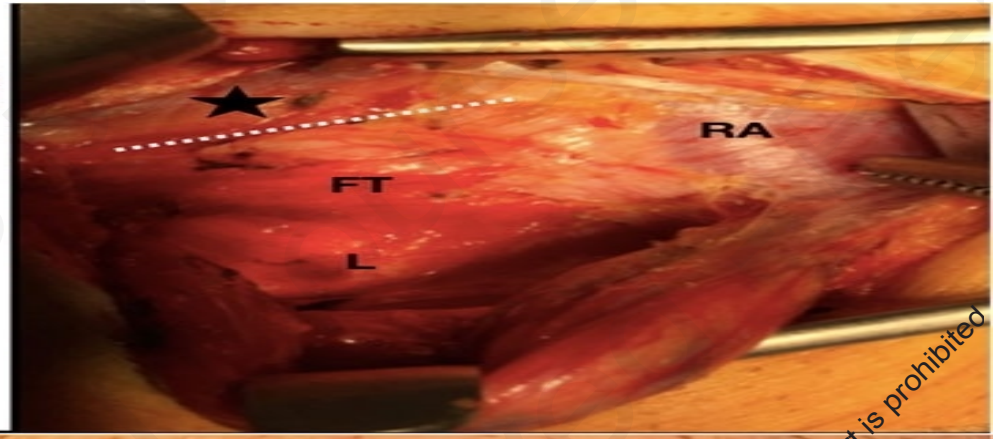
Résultats: Tableau

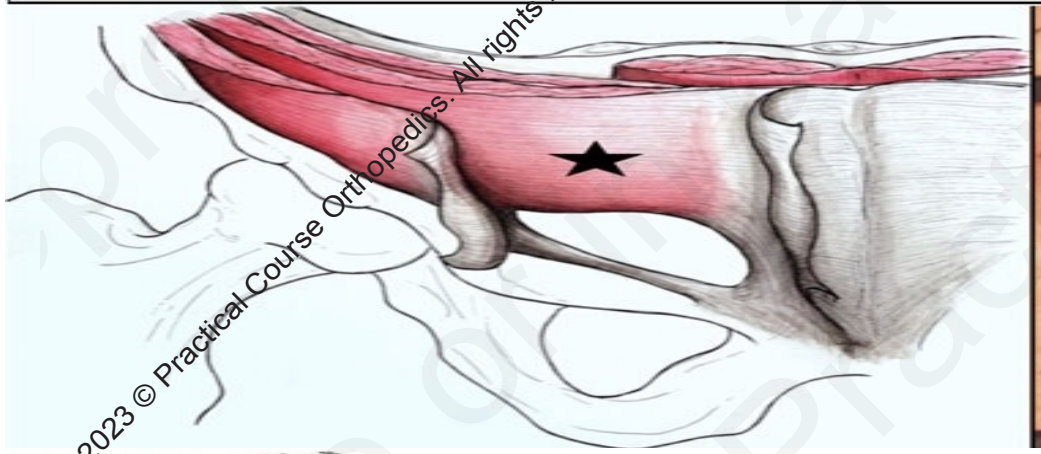
IRM (Insertion haute du TC)

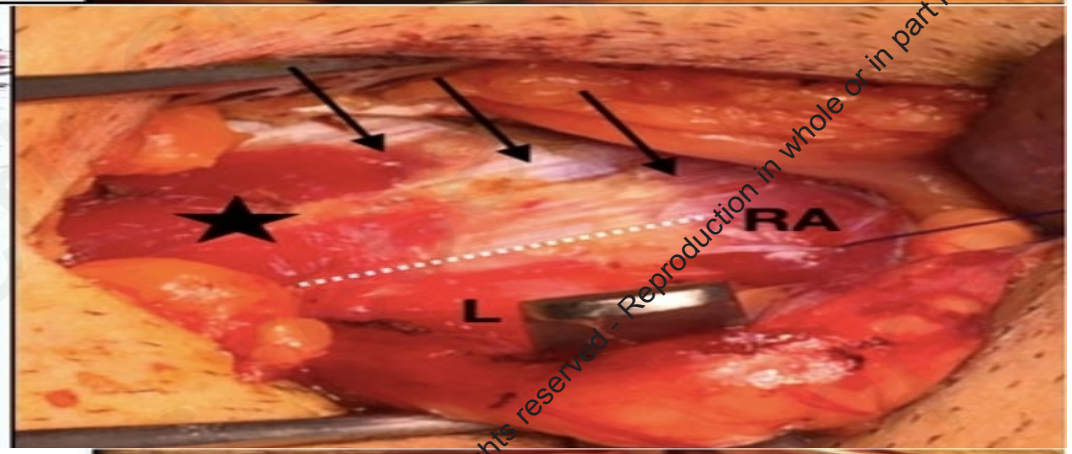
- **97% sensitivité**
- **68% specificité**

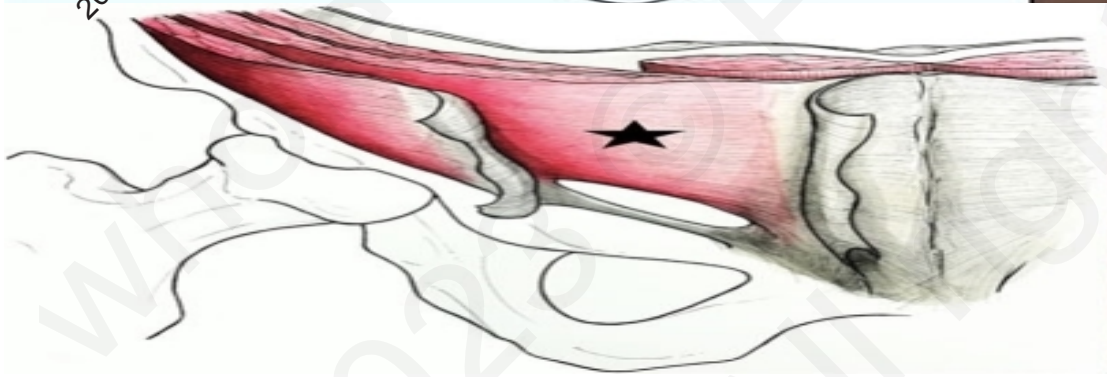
[High insertion of conjoint tendon is associated with inguinal-related groin pain: a MRI study.](#)
Bou Antoun M, Ronot M, Crombe A, Moreau-Durieux MH, Reboul G, Pesquer L.
Eur Radiol. 2020 Mar;30(3):1517-1524. doi: 10.1007/s00330-019-06466-4. Epub 2019 Nov

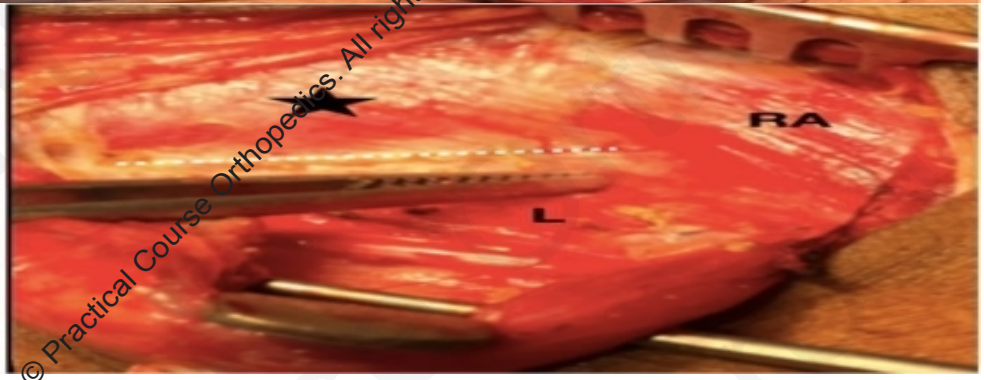












	Patients Symptomatiques	Patients controles	Total
Type 1	**22**	**10**	32/128
Type 2	**27**	**8**	35/128
Type 3	**15**	**46**	61/128

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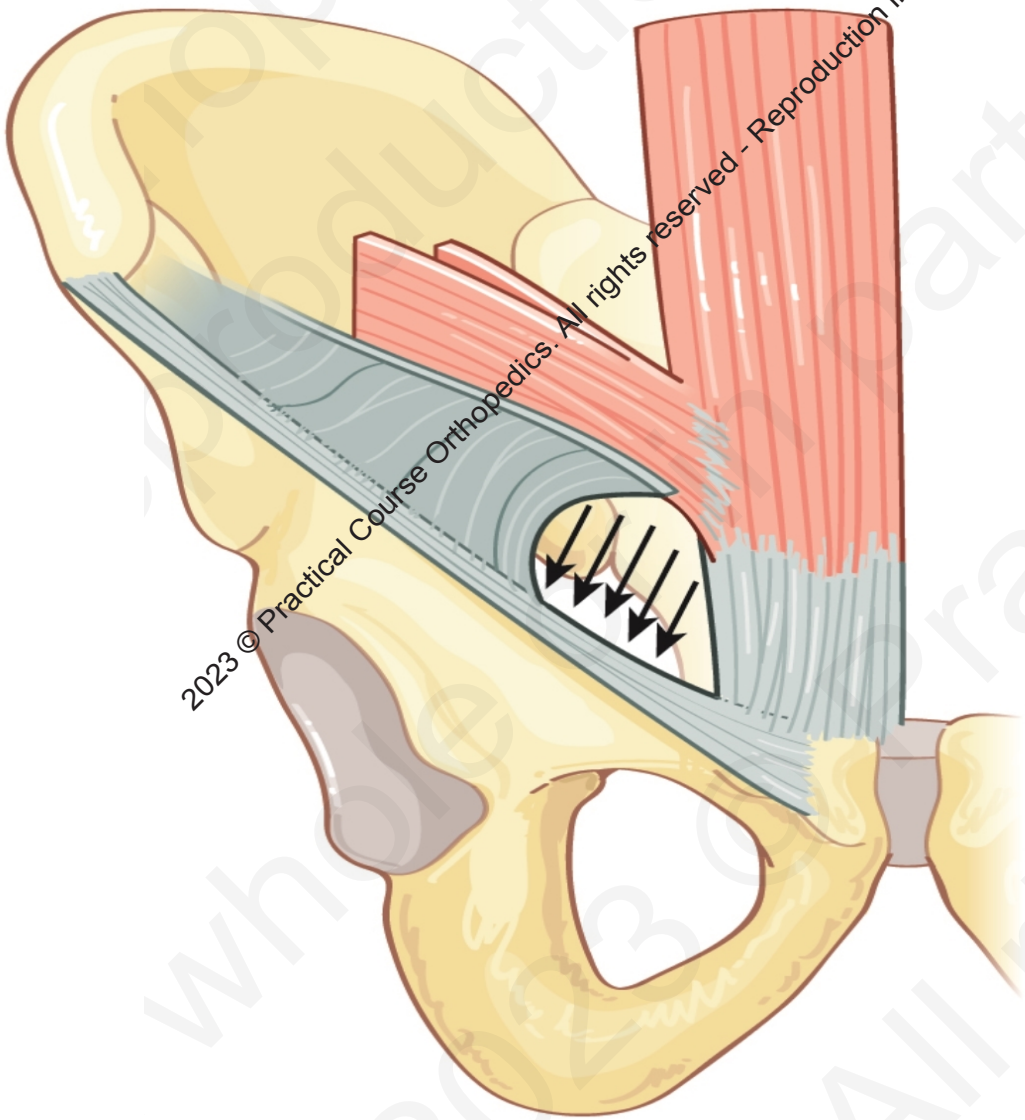
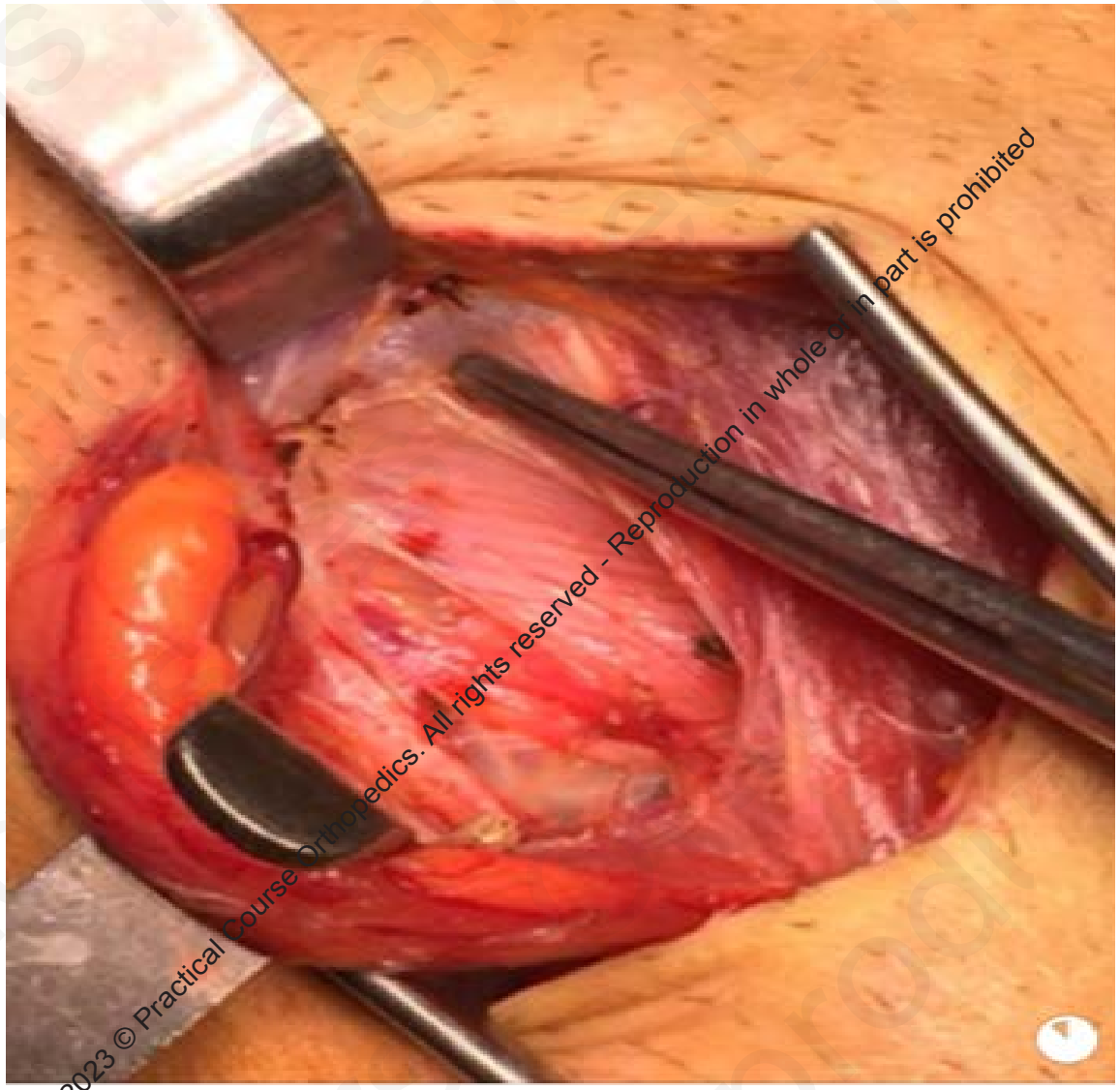
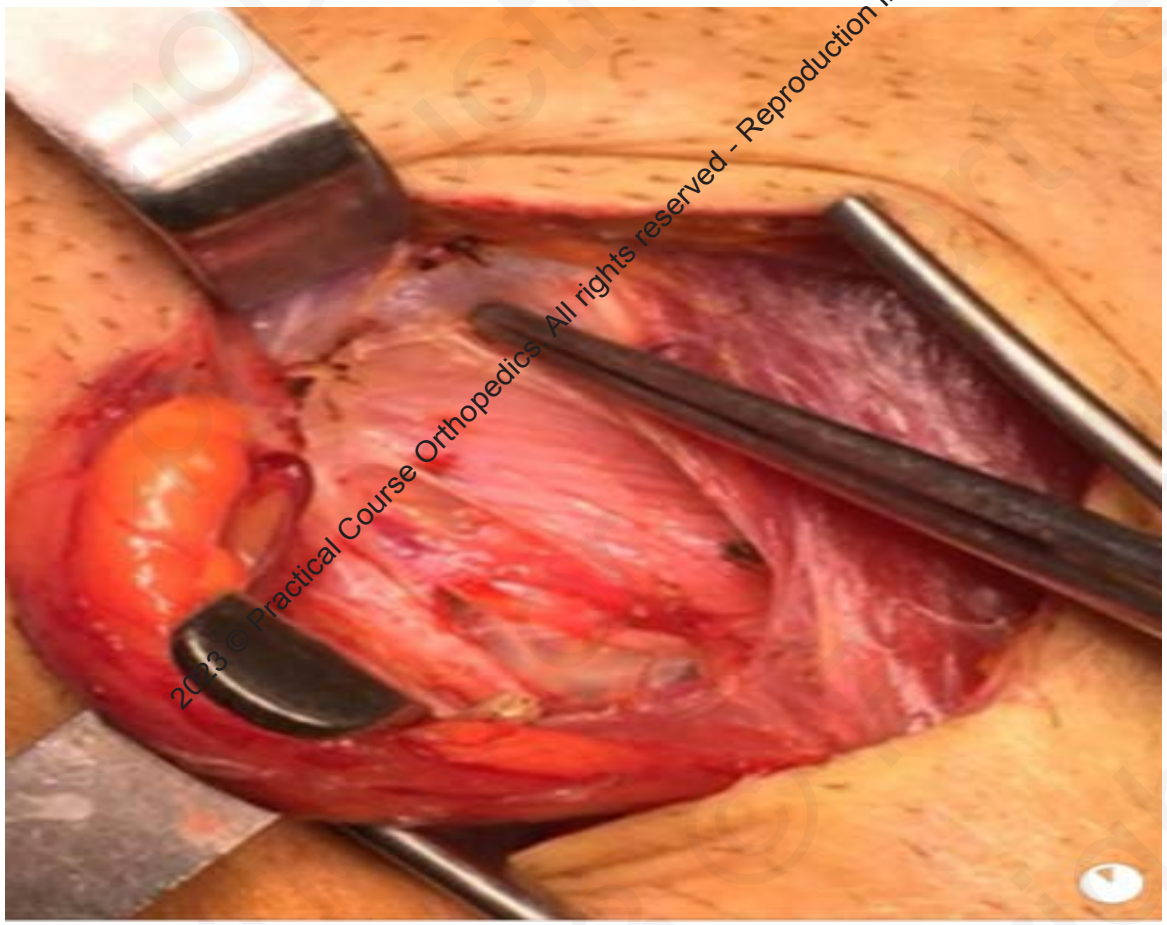
Inguinal related groin pain

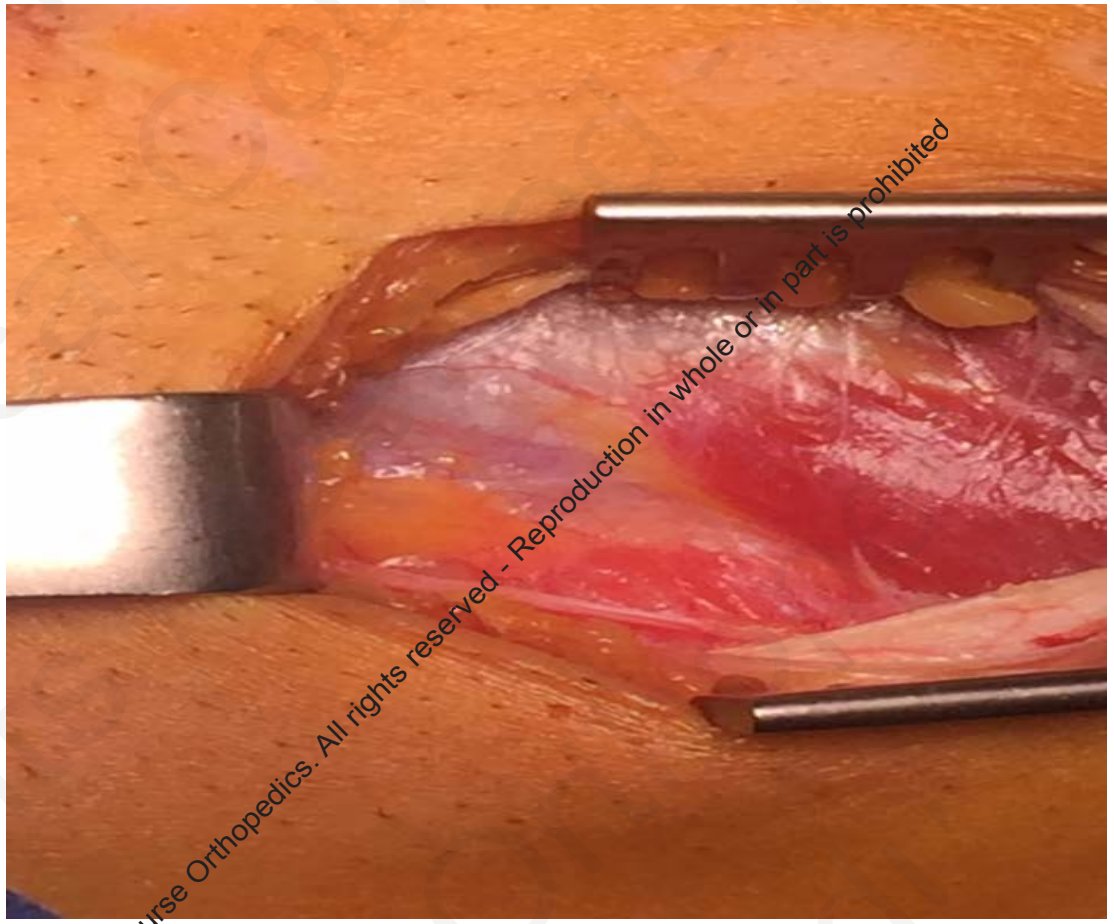




Inguinal related groin pain

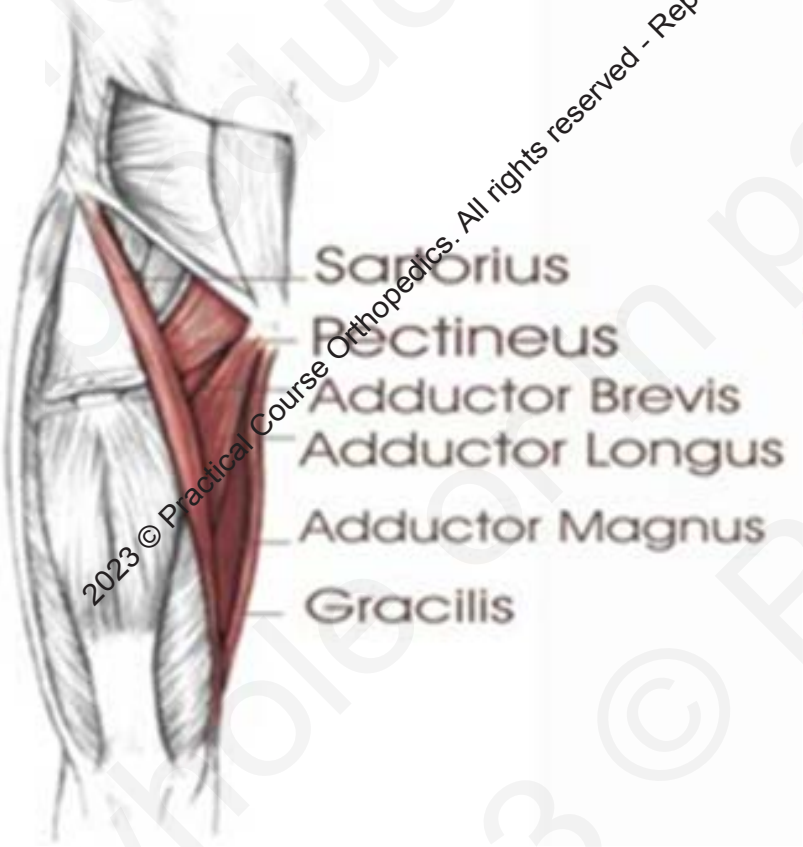


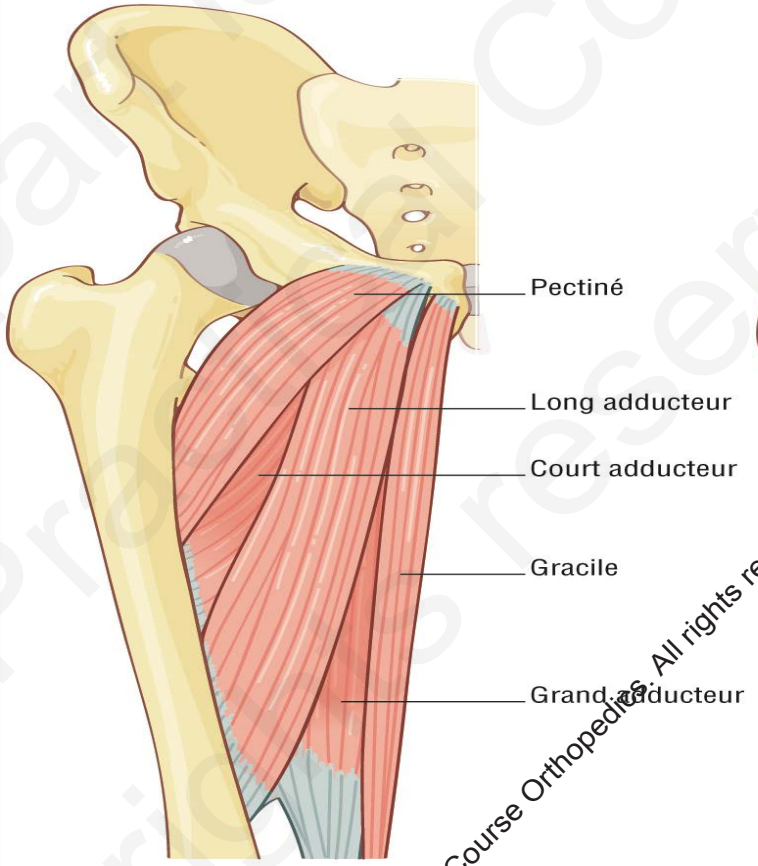
Male

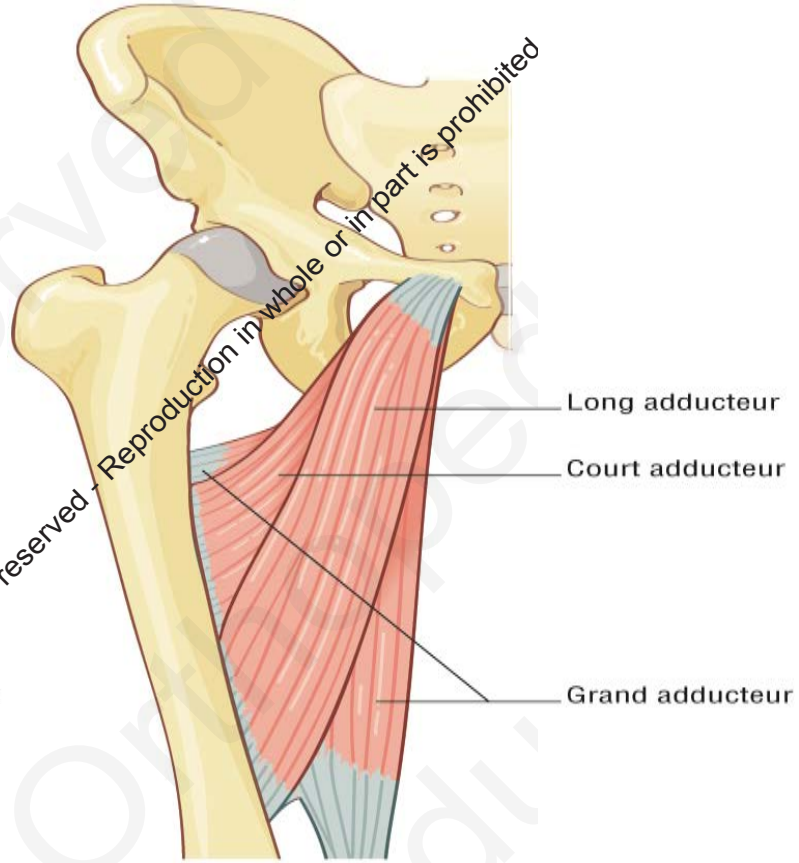


Female

Adductor related groin pain







Adductor related groin pain

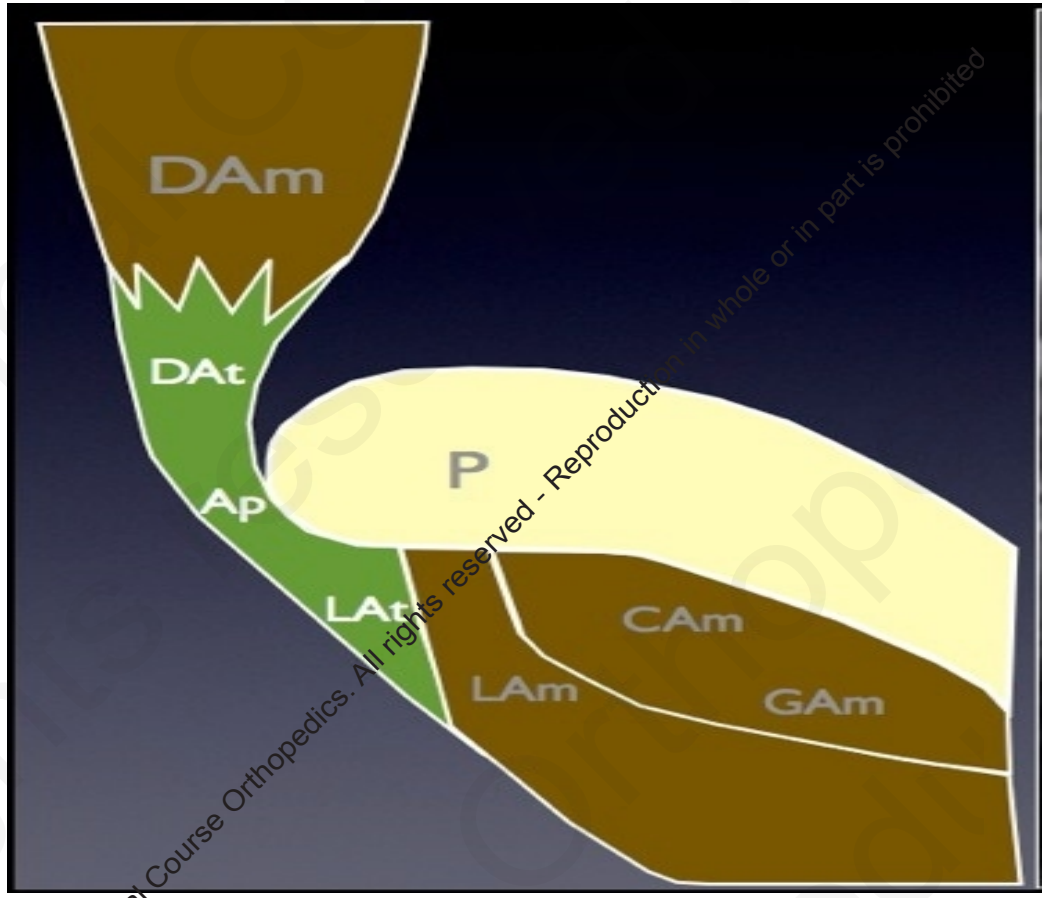
Tendon long adducteur :

40 % tendinous fibers,
60 % muscle fibers :

Small tail < 2 cm

Enthèse fibro-cartilagineuse rapport / capsule articulaire symphysaire (variation : tendon ou musculaire)

Others adducteurs :
Muscular insertion only

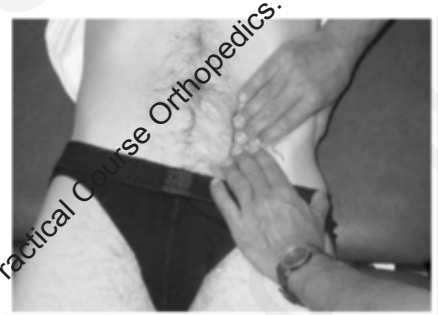


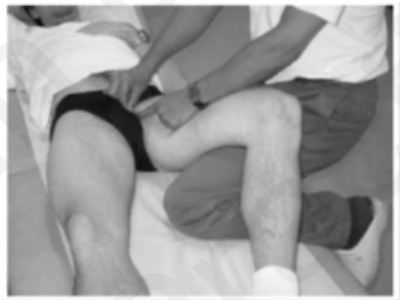
ORIGINAL ARTICLE

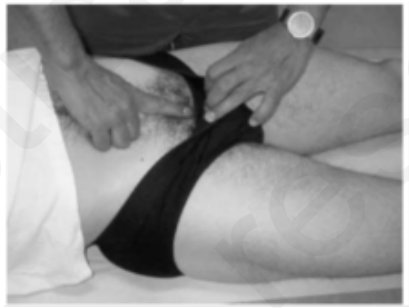
Clinical examination of athletes with groin pain: an intraobserver and interobserver reliability study

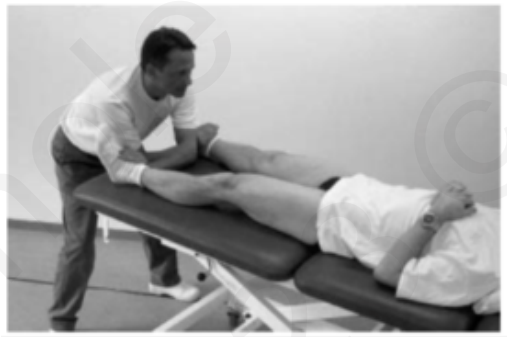
P Hölmich, L R Hölmich, A M Bjerg

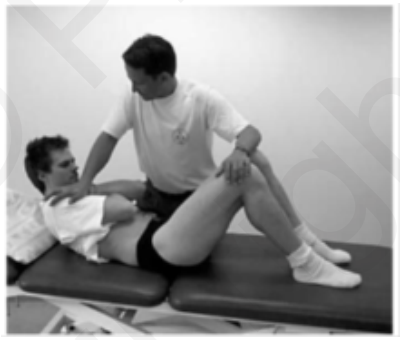
Br J Sports Med 2004;**38**:446–451. doi: 10.1136/bjsm.2003.004754

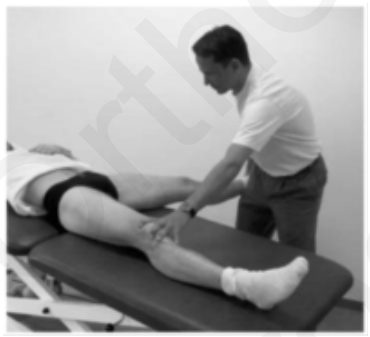










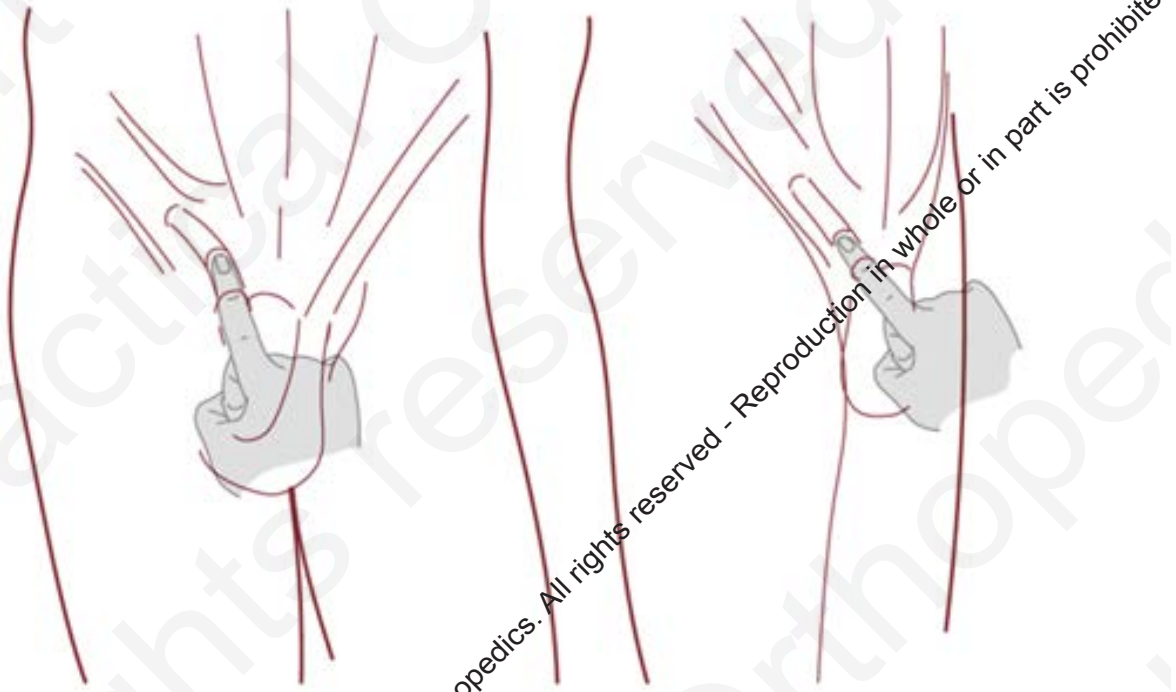


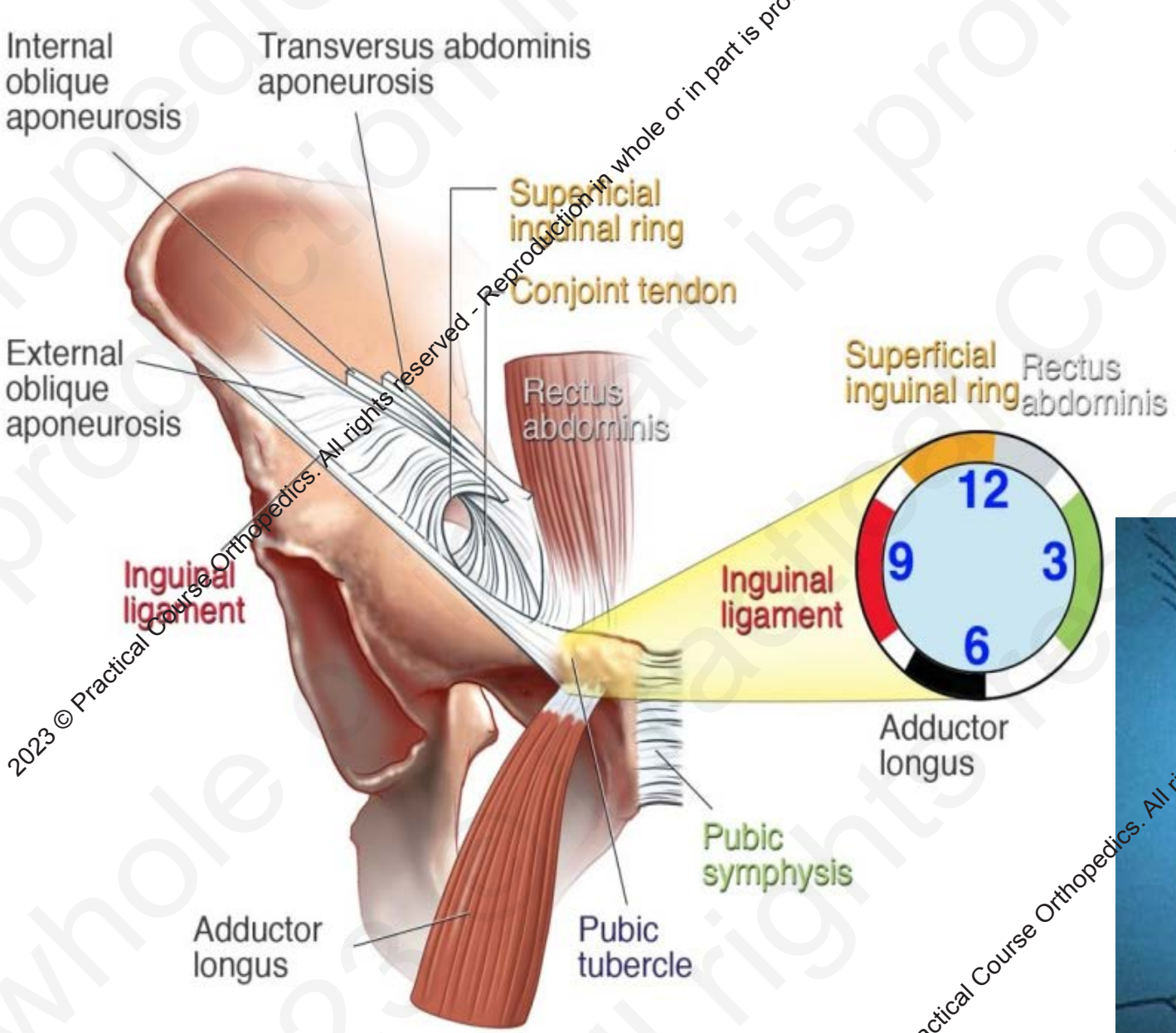
Clinical examination - palpation

Inguinal canal

The patient is **standing** in front of the examiner. The examiner **inverts the scrotum** with one finger and the external inguinal ring can be palpated slightly proximally and laterally to the pubic tubercle.

The examiner then moves the tip of the finger through the external inguinal ring into the inguinal canal, and **palpates conjoint tendon, posterior wall of the inguinal canal and inguinal ligament**, and checks for the cough impulse (**Valsalva**).





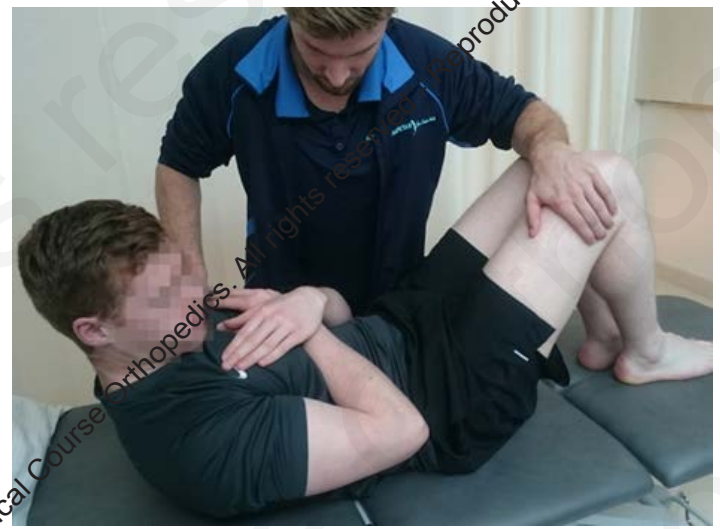
Clinical examination – stretch and resistance

Resisted straight sit-up

The patient lies supine on the examination bed with the hips in approximately 45 degrees flexion and the knees approximately 90 degrees flexion. The feet are flat on the examination bed and the patient's arms are folded over the chest. The patient performs a sit-up movement, lifting head and scapulae from the couch, while the examiner resists the movement by holding one arm on the patient's knees and the other arm on the patient's chest.

Resisted oblique sit-up

The patient performs a diagonal sit-up movement, attempting to move one shoulder towards the contralateral knee. The examiner resists the movement by holding one arm on the patient's shoulder and the other on the contralateral knee.

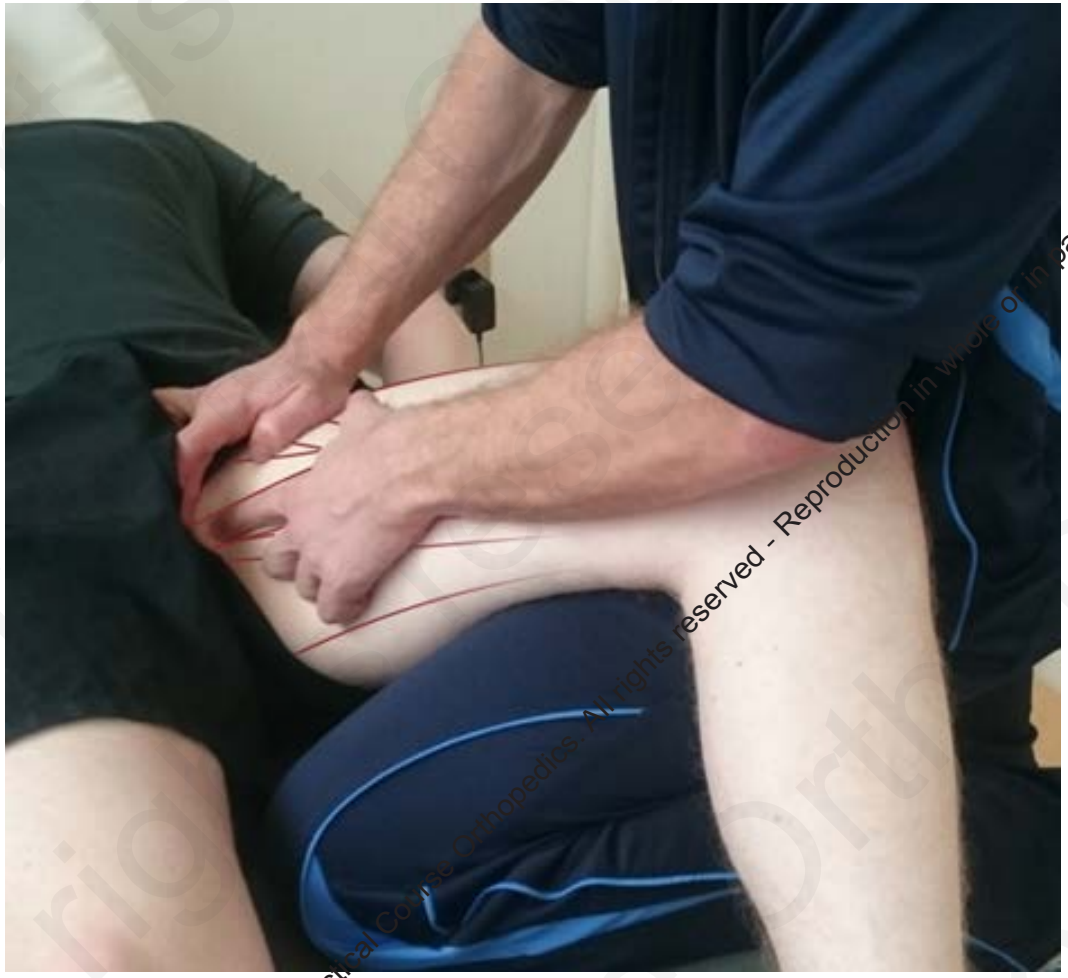


Clinical examination - palpation

Adductor longus

The patient lies **supine** on the examination bed with the tested **leg placed in a relaxed position with the knee on the examiners thigh**, which is supported by the examination bed. The hip of the tested leg is flexed, slightly abducted and externally rotated.

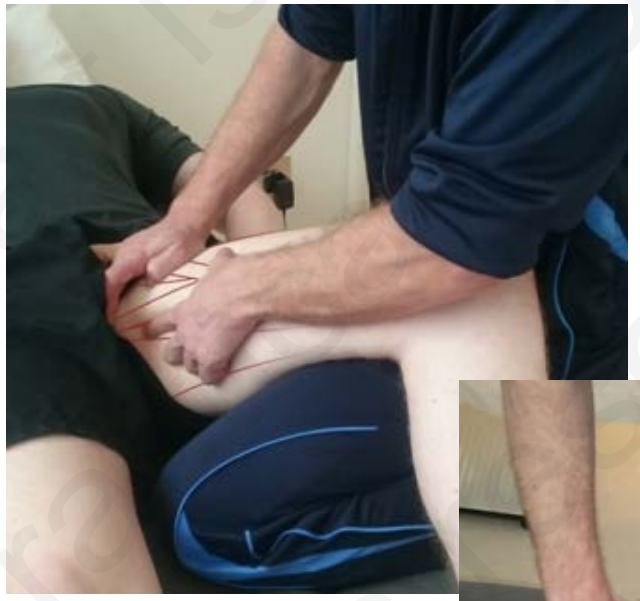
The examiner palpates the adductor longus insertion on the pubic bone just inferior to the pubic tubercle and follows the adductor longus tendon and muscle distally.



Clinical examination - palpation

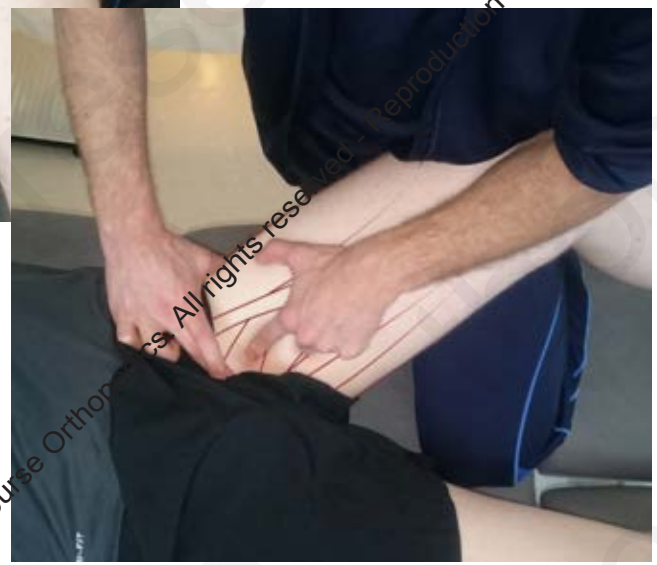
Gracilis

The examiner palpates the gracilis muscle a few centimeters distal to the pubic insertion to distinguish the gracilis from the adductor longus. The gracilis is then palpated both proximally and distally from the starting point.

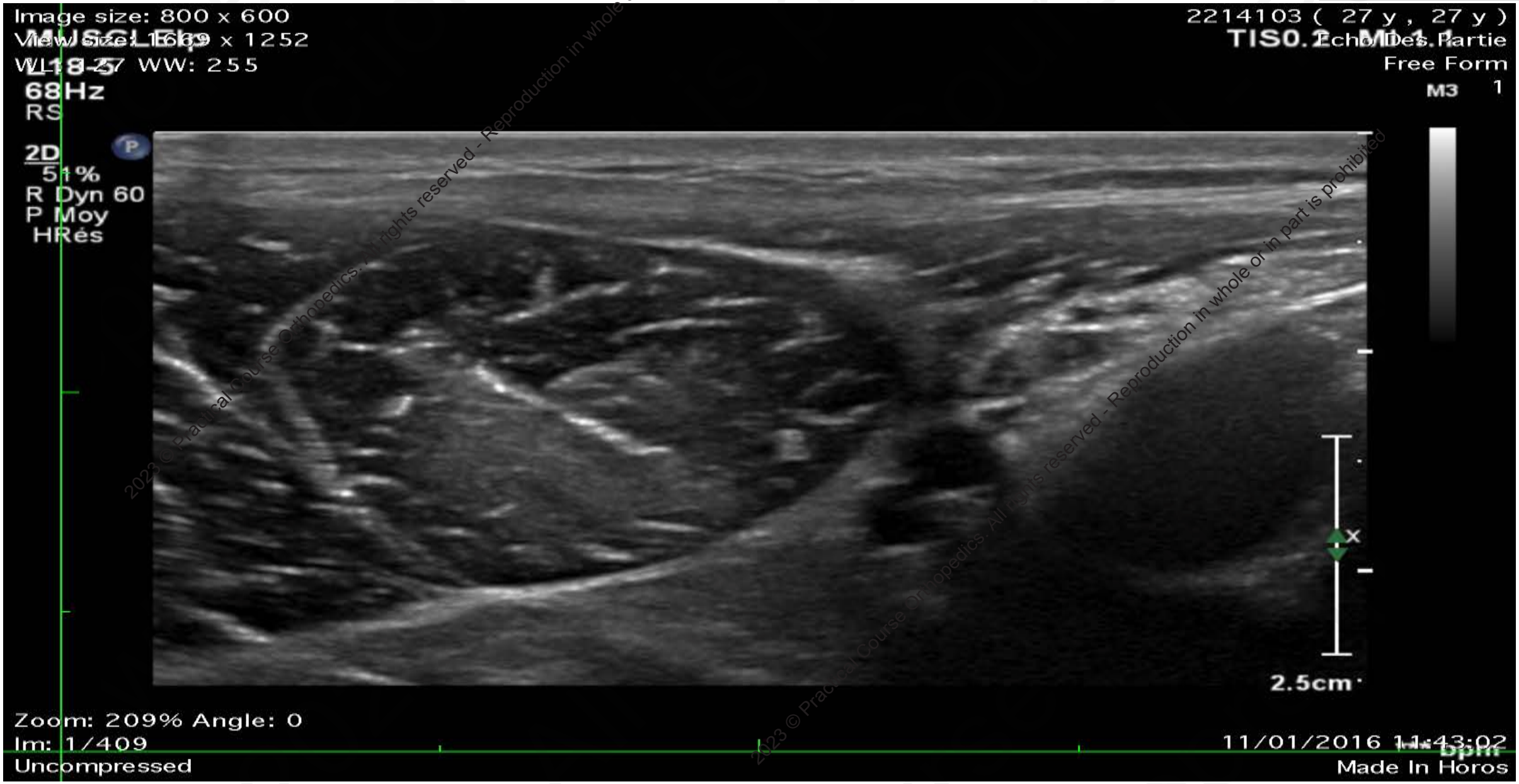


Pectineus

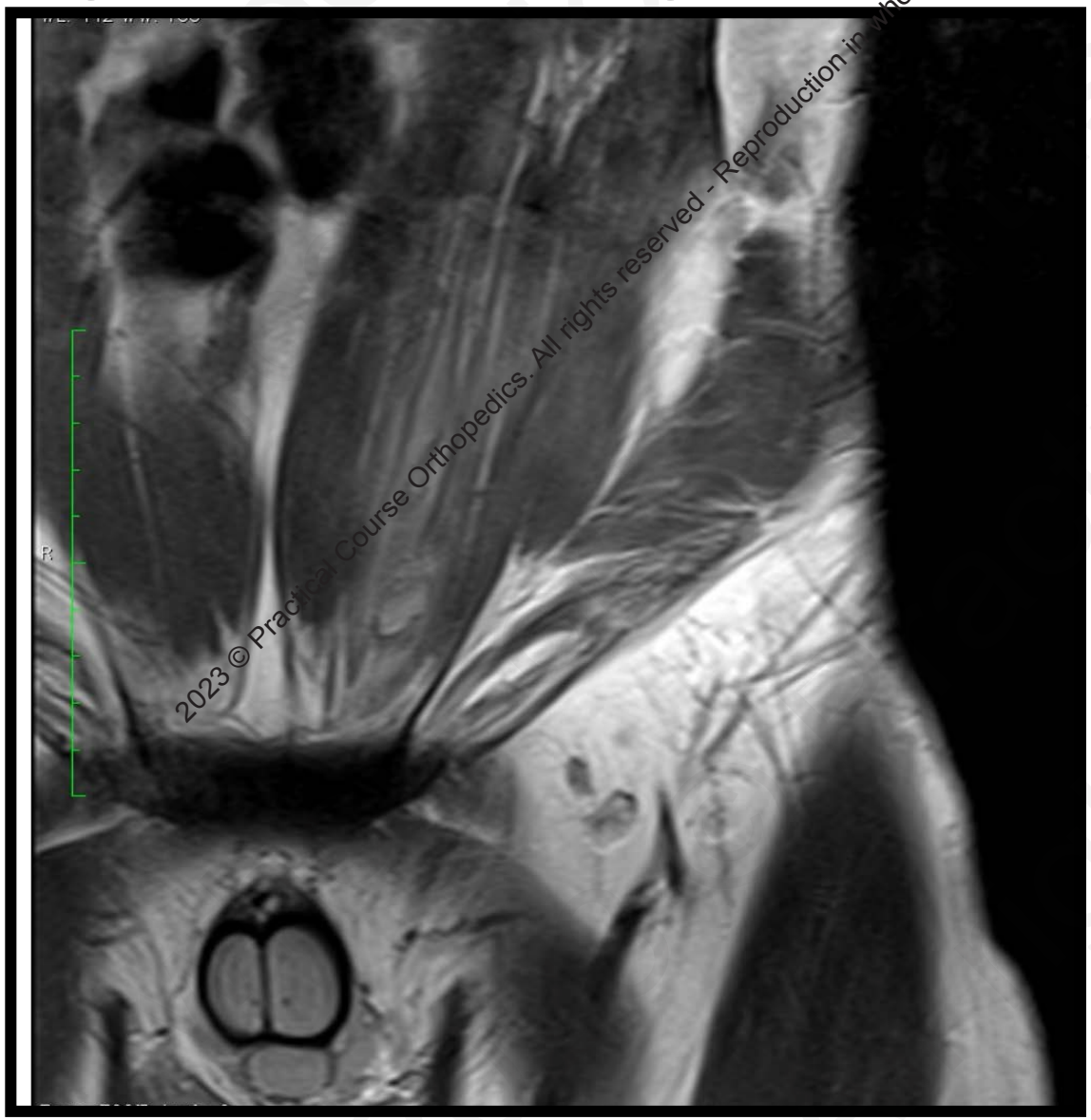
The examiner palpates the pubic tubercle and follows the superior pubic ramus a few centimeters laterally. Pectineus is then palpated distally within the femoral triangle, lateral to the adductor longus.

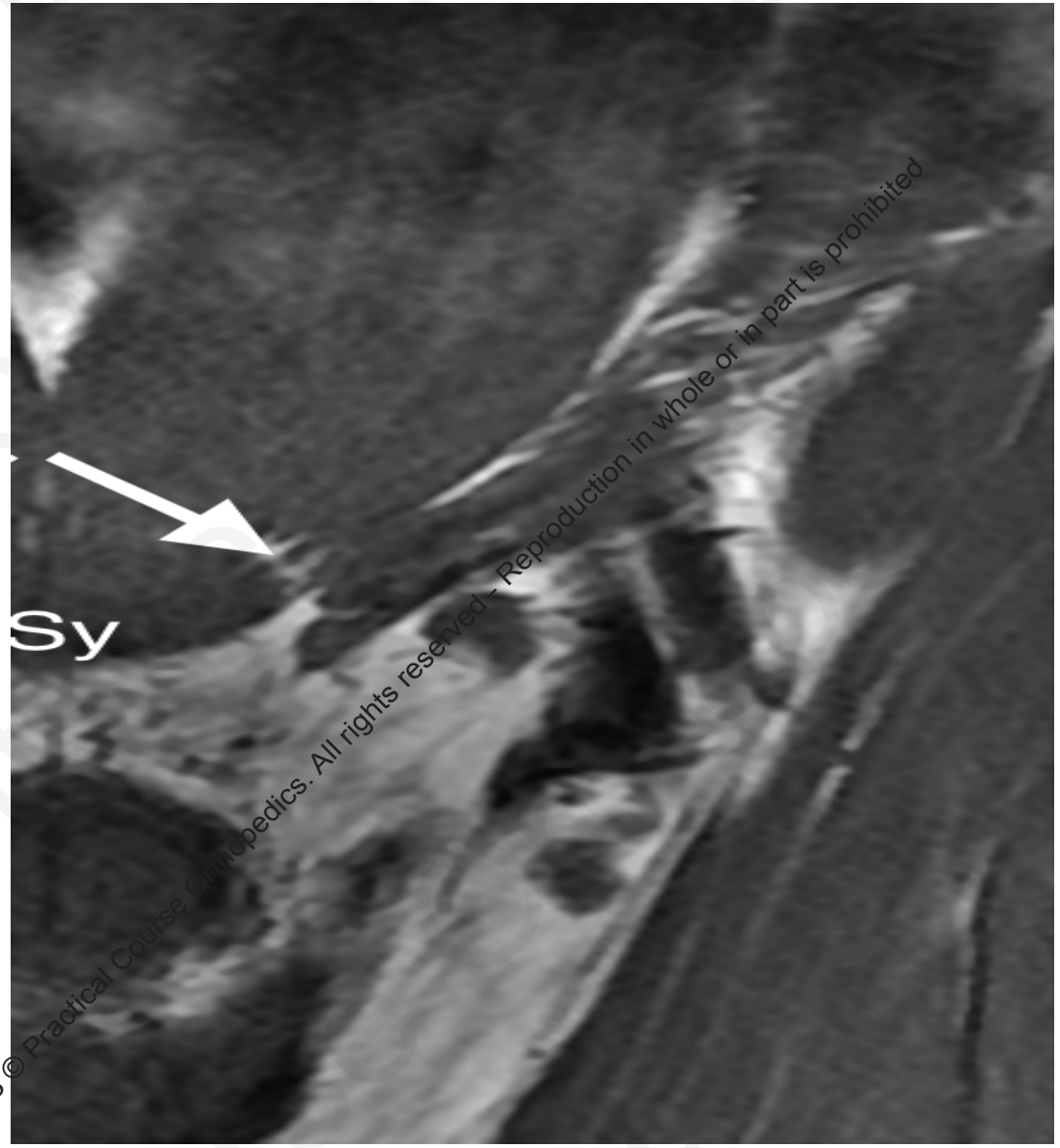


Inguinal related groin pain

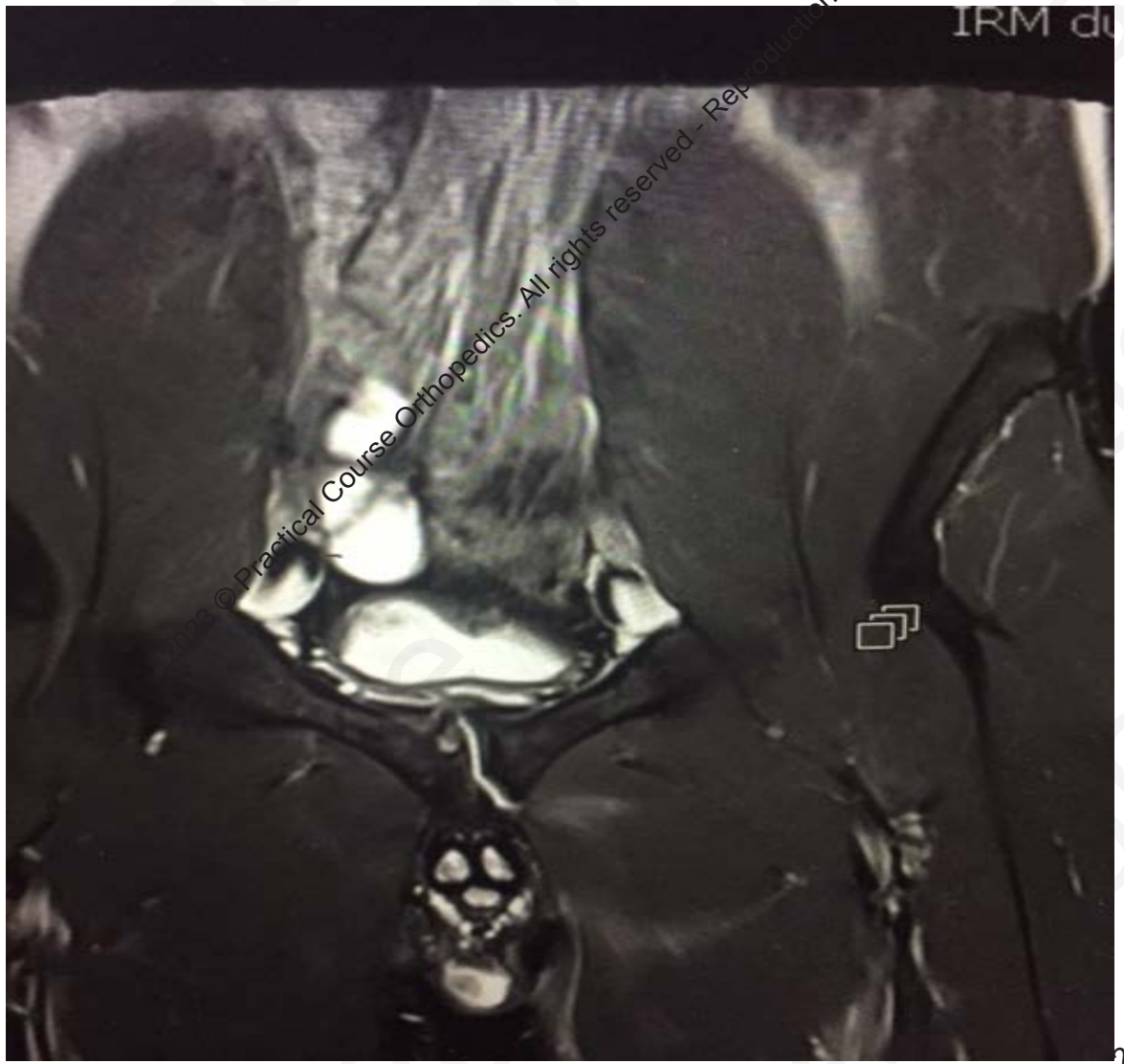


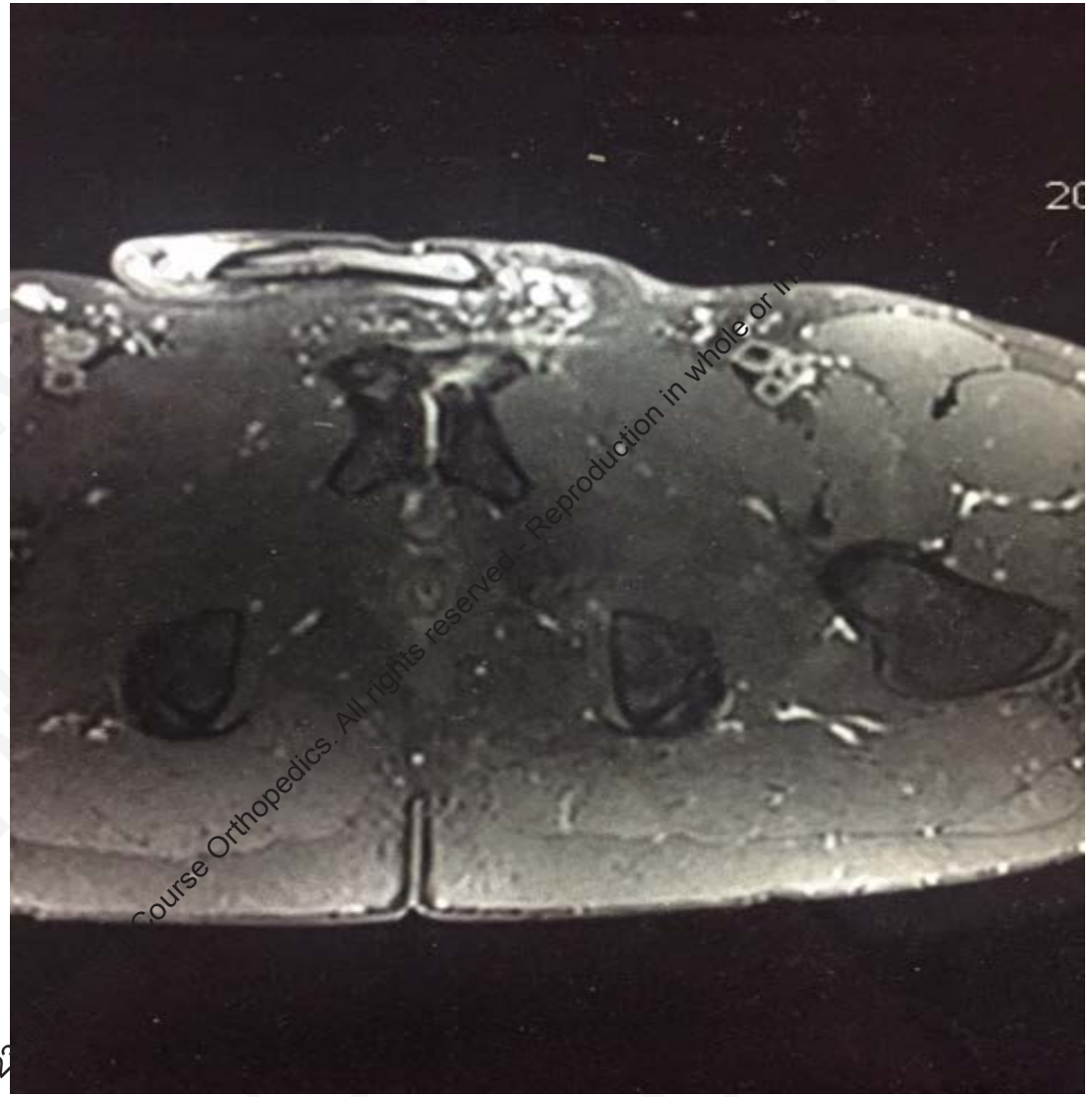
Inguinal related groin pain MRI



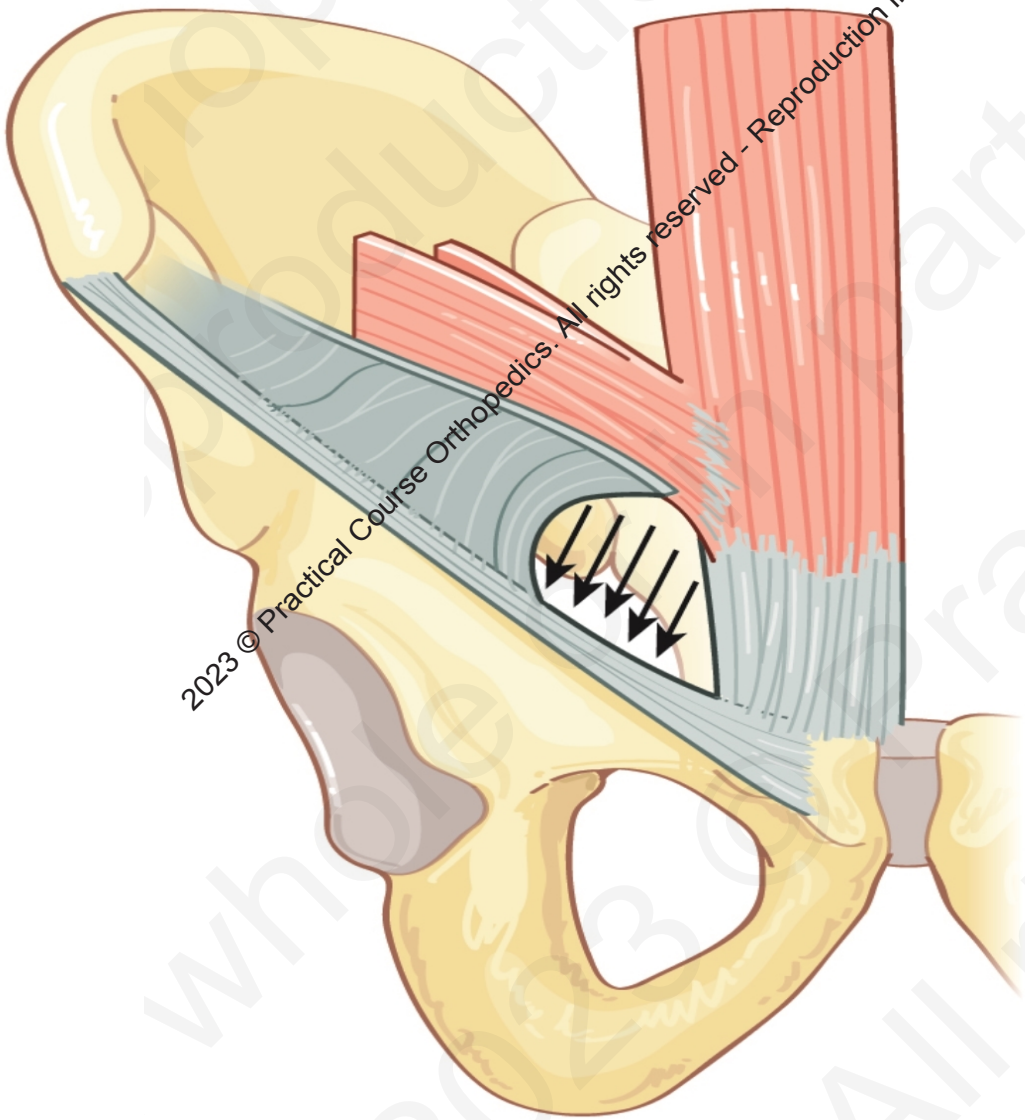


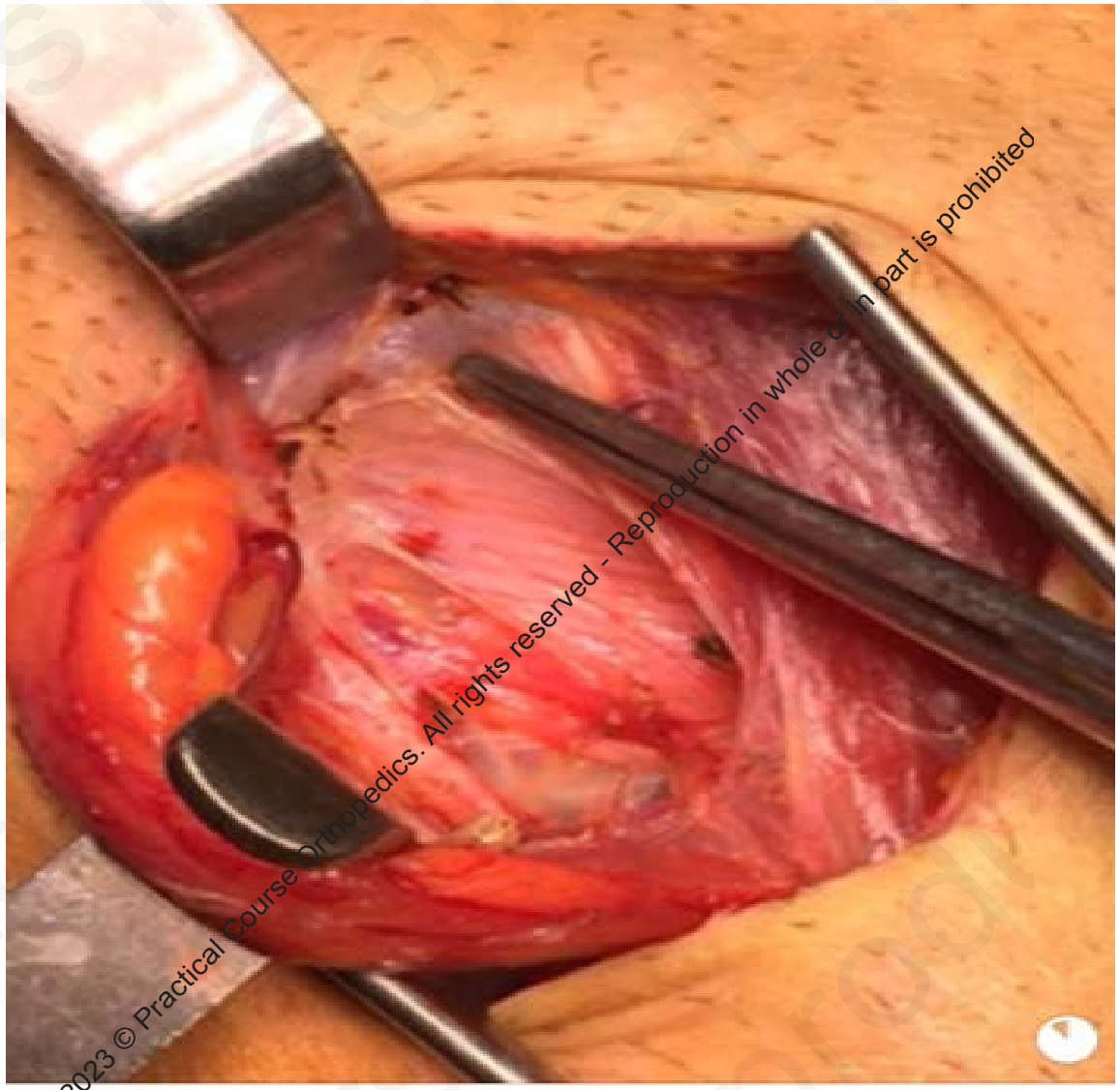
Adductor related groin pain

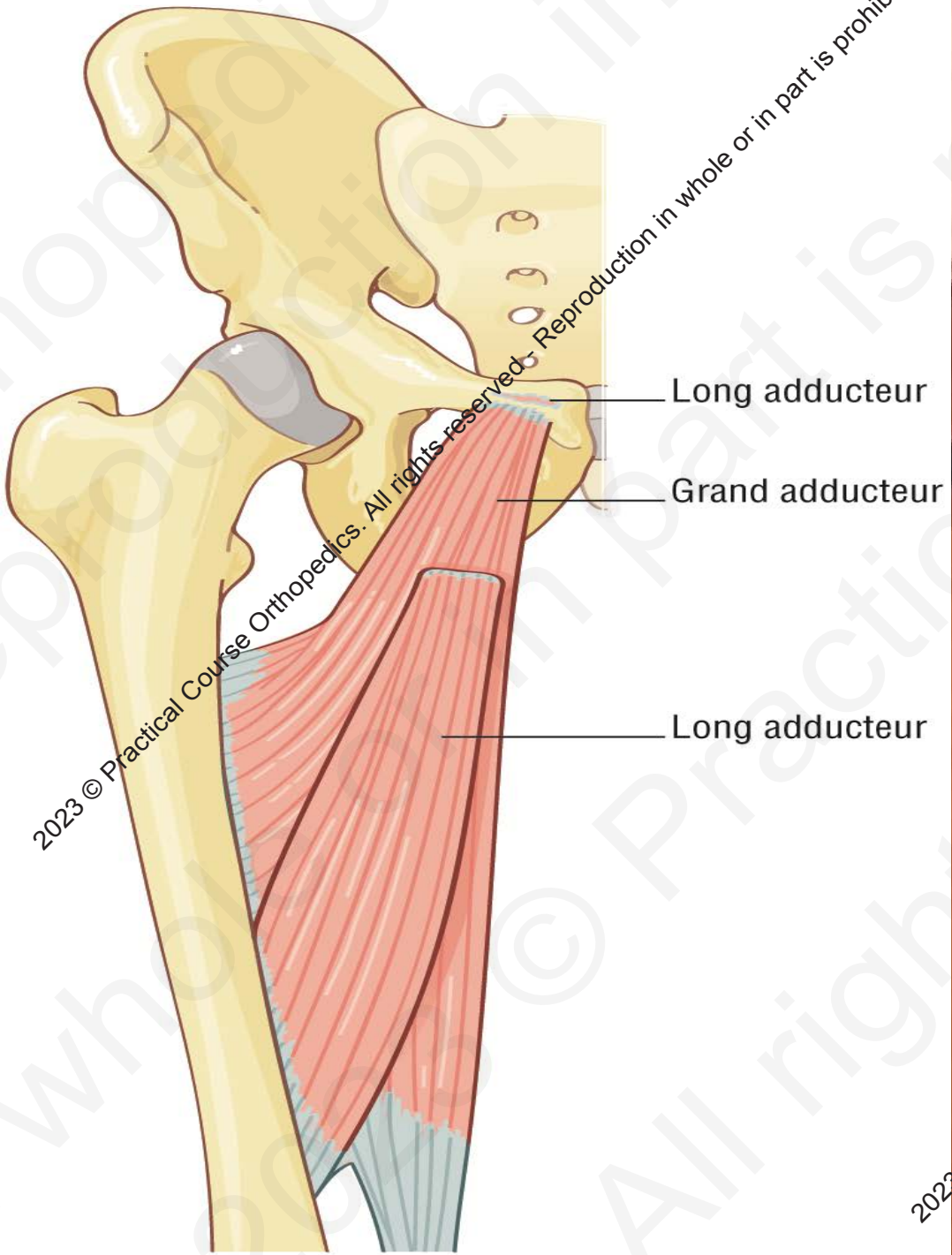




Inguinal related groin pain







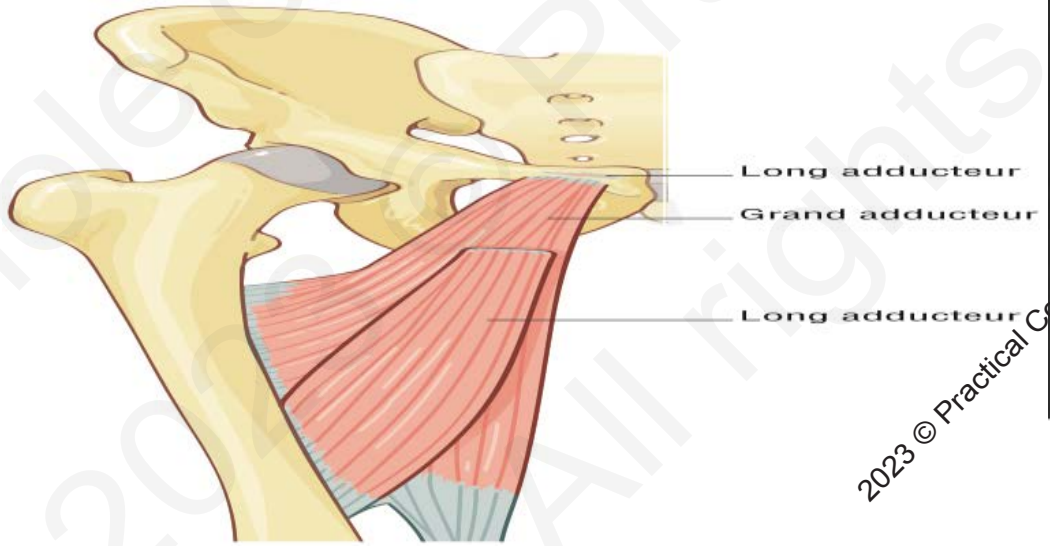
Morbidity

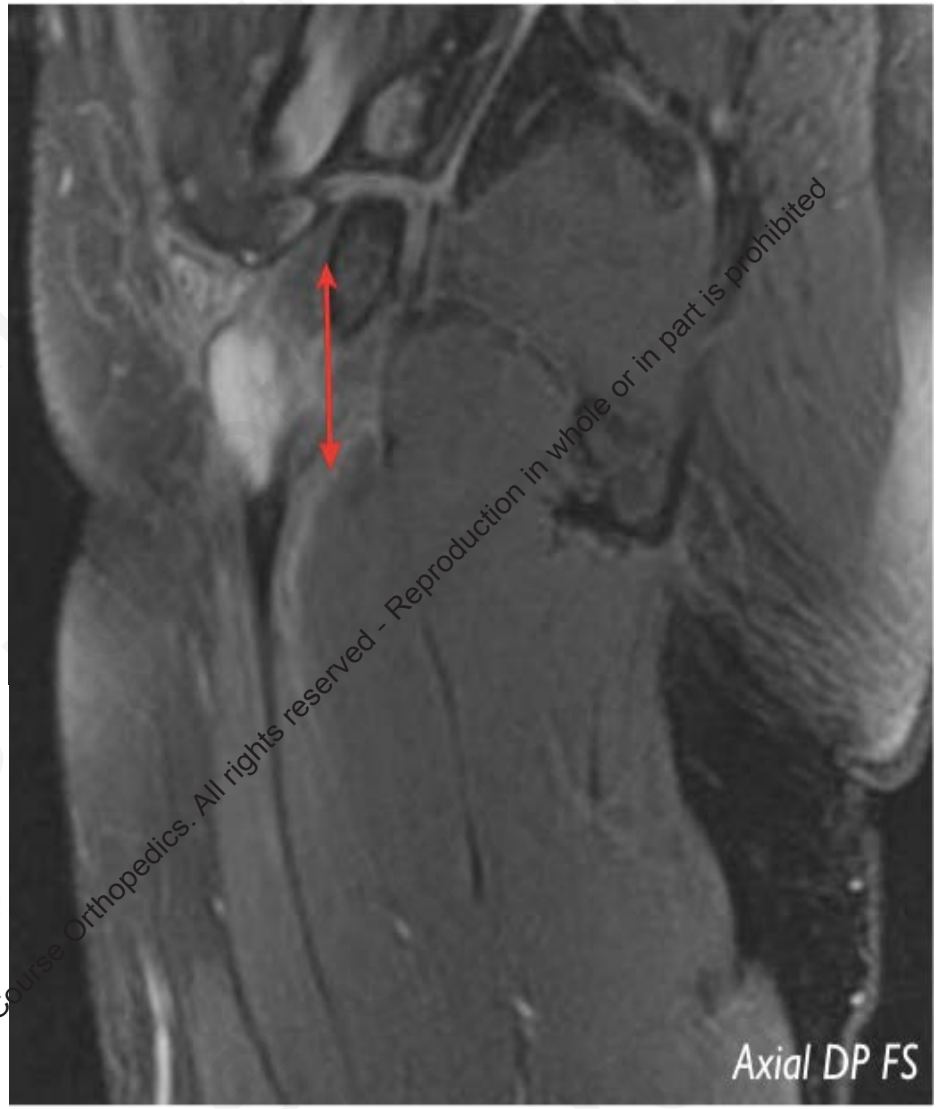
Hématoma 2%

Infection 0,05 %

Scar tissue disruption
15 à 25 %

Betwen 1 or 3 months post op



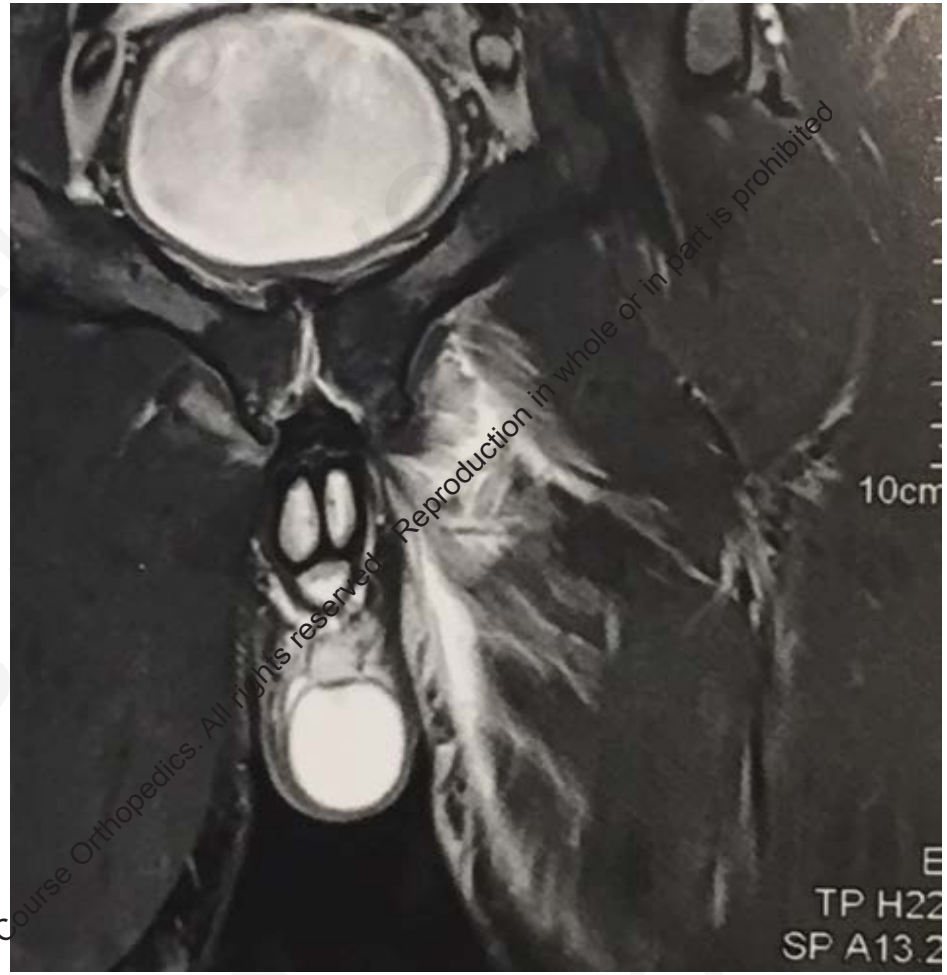


ACUTE INJURY adductor longus

- Hight incidence (Ekstrand 2011)
- 25% of muscle injury

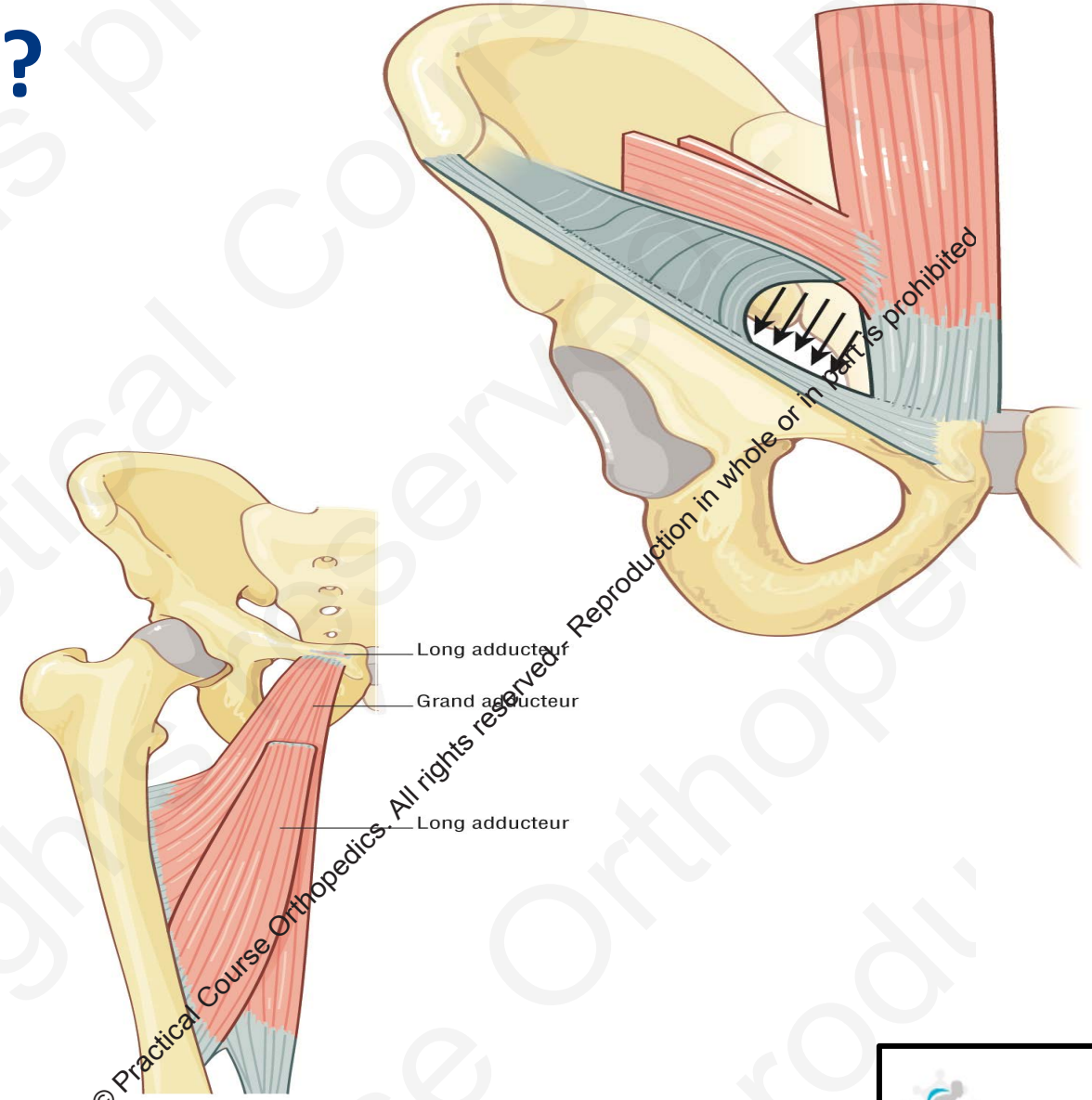
- After Medical Treatment and active
- Physiotherapy(Holmish protocole)
- If no improvement: tenotomy

- Surgery in hight level player



Surgical treatment - WHY?

- *Inguinal repair*
  - Strengthening of inguinal canal posterior wall
  - Nerve decompression/resection
  - Reinsertion Conjoint tendon
- *Adductor tenotomy*
  - Decreasing tension at the pubic bone
- *Hip arthroscopy*
  - Labrum repair
  - FAI decompression



Surgical treatment - WHAT?

INGUINAL SURGERY

- ❑ Bassini
- ❑ Shouldice
- ❑ Muschaweck
- ❑ Lichtenstein
- ❑ Endoscopy

ADDUCTOR SURGERY

- ❑ Tenotomy
- ❑ Reattachment

HIP SURGERY

- ❑ Labrum repair
- ❑ FAI surgery

Surgical treatment - WHEN?

- Duration of symptoms > 2 months
- Rehabilitation with experienced groin physiotherapist at least 4 weeks
- No significant improvement in pain with conservative treatment
- Not possible to perform treatment exercises
- If very important weakness

Personal preference

❖ *Modified Schouldice repair*

- Ideal repair for posterior wall weakness
- Conjoint tendon sutured at the good place
- Return to training between 4-6 weeks

❖ *Adductor tenotomy*

- When conservative exercise based treatment fails
- Return to training at 6-8 weeks